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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/682,010	10/09/2003	Jeffrey Matthew Kempf	TI-35626	7738

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EXAMINER	
NGUYEN, KEVIN M	
ART UNIT	PAPER NUMBER
2629	

DATE MAILED: 12/08/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	**Application No.** 10/682,010	**Applicant(s)** KEMPF, JEFFREY MATTHEW	
	Examiner Kevin M. Nguyen	**Art Unit** 2629	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *25 September 2006*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-17* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-14* is/are rejected.

7)☒ Claim(s) *15-17* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *25 September 2006* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____.

4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ .

5) ☐ Notice of Informal Patent Application

6) ☐ Other: _____.

DETAILED ACTION

Amendments to the specification and drawing filed on 09/25/2006, which have been entered. Response to applicant's amendment/argument filed on 09/25/2006. Claims 11-17 are amended. Applicant's arguments, see pages 12-14, with respect to claims 1-14 have been fully considered and are not persuasive. The rejections of claims 1-14 are maintained. Claims 15-17 are objected.

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. Claims 1, 7 and 11-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Watanabe (US 6,522,356) in view of Matama (US 5,905,817).

3. As to claim 1, Watanabe teaches circuitry [100, Fig. 7] for converting digital data representing an image for displaying on an orthogonal pixel array [square pixels arrange in horizontal and vertical direction, Fig. 8] to digital data suitable for displaying said image [an image apparatus 300, Fig. 7] on a diamond-shaped pixel array [Fig. 1C] comprising:

a source [9, Fig. 7] for providing a stream of digital data signals representing said image for display on said orthogonal pixel array;

a linear-phase[1] Filter[2] [a linear-phase filter 100, Fig. 8] having an input for receiving said stream of digital data signals and for providing a filtered data stream [it is noted that Fig. 2 describes a linear phase is a property of a filter, where the phase response of the filter is a linear function of frequency f_H and f_V, excluding the possibility of wraps at $\pm\pi$. Perfect linear phase is equivalent to a symmetrical impulse response, see col. 6, lines 33-39, and col. 8, lines 2-43]; and

circuitry for sub-sampling said filtered data for use on a diamond-shaped array by dropping data to be displayed for even pixels on all odd numbered orthogonal rows and dropping data intended for display for odd pixels on all even numbered rows [see Fig. 1C, col. 6, lines 40-43].

Accordingly, Watanabe teaches all of the claimed limitation, except for a Linear-phase IIR Filter.

However, Matama teaches a filtering process on an image signal with a Linear-phase[i] [see Figs. 3A-3D] IIR filter[ii] [see Fig. 1 and 6, col. 6, lines 23-30, and col. 12, lines 25-65].

4. The limitations of a method of claim 7 associates with the limitations of the apparatus of claim 1 and therefore the rationale of rejection will be the same.

5. As to claim 11, Watanable conventionally discloses the circuitry of claim 1: wherein the orthogonal pixel array comprises a number of rows and a number of columns of pixels; and wherein each column in the number of columns is linearly

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[1] See http://en.wikipedia.org/wiki/Linear_phase
[2] See http://en.wikipedia.org/wiki/Infinite_impulse_response

aligned with a pixel in a single row of the number of rows in figure 17A, col. 1, lines 48-58.

6. As to claim 12, the combination of Watanable and Matama teaches the circuitry of claim 1: wherein the Linear-Phase IIR filter comprises at least one node; and further comprising circuitry for modifying pixel intensity data at the at least one node in response to pixel intensity of one pixel as modified by pixel intensity of another pixel that precedes the one pixel in the orthogonal pixel array in col. 7, lines 1-27.

7. As to claim 13, Watanable teaches the circuitry of claim 12: wherein the one pixel has a coordinated of (x, y) designating a row location of x and a column location of y of the one pixel in the orthogonal pixel array; and wherein the circuitry of modifying modified in response to the another pixel at a location of (x+1, y+1) in col. 15, lines 1-28.

8. As to claim 14, Watanable teaches the circuitry of claim 13 wherein the circuitry for modifying in response to a constant times an intensity of the another of the another pixel at a location of (x+1, y+1) in col. 15, lines 1-28.

9. It would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify the color filter as taught by Watanabe to become the Linear-phase IIR Filter as taught by Matama, because this would improve a good quality of the image being displayed (Matama, col. 9, lines 28-36).

10. Claims 2-6 and 8-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Watanabe in view of Matama as applied to claim 1 above, and further in view of Bradley et al (US 6,928,196) hereinafter Bradley.

11. As to claim 2, the combination of Watanabe and Matama teaches all of the claimed limitation, except for detection circuit for receiving said filtered data and for detecting a vertical edge in said image.

However, Bradley teaches edge detection modules (1209 to 1225) for calculating the vertical edge in the image [see Fig. 12 and 18, col. 18, lines 1-14, and col. 24, line 63 through col. 25, lines 47].

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to implement the edge detection modules for the intended use in the combination of Watanabe and Matama, because this would prevent colored ringing, or color bleeding, around sharp edges of one primary color (see Bradley, col. 15, lines 13-30, col. 16, lines 26-31, col. 17, lines 28-35, and col. 18, lines 45-50).

12. As to claim 3, the combination of Watanabe and Matama further teaches the circuitry of claim 1 wherein said Linear-Phase IIR Filter [18, see Matama, Fig. 1] includes a plurality of stages and further comprising an output connection for providing a partial filtered output data stream [see Matama, Fig. 6];

the combination of Watanabe and Matama and Bradley further teaches Ringing Minimization circuit [maximum/minimum finder circuit, see Bradley, Fig. 24] for receiving said partially filtered output data stream and for providing a ringing minimization signal; and

limiter circuit [comparison circuits 2407, 2413, and a multiplexer 2409, see Bradley, Fig. 24] for coupling said ringing minimization signal and said filtered data stream to generate a filtered data stream with reduced ringing [see Bradley, col. 30, lines 47 through col. 31-32, line 15].

13. As to claim 4, Bradley further teaches the circuitry of claim 2 further comprising switching circuitry for receiving said sub-sampled filtered data and first and second high frequency filters, switching circuitry providing said sub-sampled filtered data to said first high frequency filter when a vertical edge is detected and to said second high frequency filter when a vertical edge is not detected [see col. 25, lines 1-36].

14. As to claim 5, Bradley further teaches the circuitry of claim 4 wherein said first filter is applied across three line-interleaved pixels when selected and said second filter is applied across three horizontally adjacent pixels when selected [see col. 25, lines 1-18].

15. As to claim 6, Bradley further teaches the circuitry of claim 5 further including circuitry for providing a selected gain of data from said first and second filters [see Fig. 25].

16. The limitations of a method of claim 8 associates with the limitations of the apparatus of claim 2 and therefore the rationale of rejection will be the same.

17. The limitations of a method of claim 9 associates with the limitations of the apparatus of claim 3 and therefore the rationale of rejection will be the same.

18. The limitations of a method of claim 10 associates with the limitations of the apparatus of claim 4 and therefore the rationale of rejection will be the same.

Allowable Subject Matter

19. Claims 15-17 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. The following is a statement of reasons for the indication of allowable subject matter: the cited prior art, single or combination, does not teach or suggest all features recited in claims 15-17. If add this distinct feature to the independent claims 1 and 7, and will render the above limitation would be allowable and along with other limitations as recited in the independent claims 1 and 7.

Response to Arguments

20. Applicant's arguments filed 09/25/2006 have been fully considered but they are not persuasive.

21. Applicant argues with respect to preamble claims 1 and 7. In response to applicant's arguments, the recitation “circuitry for converting digital data representing an image for displaying on an orthogonal pixel array to digital data suitable for displaying said image on a diamond-shaped pixel array” has not been given patentable weight because the recitation occurs in the preamble. A preamble is generally not accorded any patentable weight where it merely recites the purpose of a process or the intended use of a structure, and where the body of the claim does not depend on the preamble for completeness but, instead, the process steps or structural limitations are able to stand alone. See *In re Hirao*, 535 F.2d 67, 190 USPQ 15 (CCPA 1976) and *Kropa v. Robie*, 187 F.2d 150, 152, 88 USPQ 478, 481 (CCPA 1951).

22. Applicant argues with respect to claims 1 and 7 recited “dropping data to be displayed for even pixels on all odd numbered orthogonal rows and dropping data intended to for display odd pixels on all even numbered rows.” In response, the examiner respectfully disagrees. As stated infra with respect to claims 1 and 7, Watanabe teaches corresponding functionality in Fig. 1C, col. 6, lines 1-13, and lines 40-43. In response to applicant's argument that “dropping data to be displayed for even pixels on all odd numbered orthogonal rows and dropping data intended to for display odd pixels on all even numbered rows”, a recitation of the intended use of the claimed invention must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art. If the prior art structure is capable of performing the intended use, then it meets the claim.

23. In response to applicant's argument that there is no suggestion to combine the references, the examiner recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988) and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992). In this case, the motivation has been provided at each end of the combination of two references.

Where, however, the specification is silent as to what constitutes equivalents and the examiner has made out a prima facie case of equivalence, the burden is placed upon the applicant to show that a prior art element which performs the claimed function is not an equivalent of the structure, material, or acts disclosed in the specification. See In re Mulder, 716 F.2d 1542, 1549, 219 USPQ 189, 196 (Fed. Cir. 1983). If the applicant disagrees with the inference of equivalence drawn from a prior art reference, the applicant may provide reasons why the applicant believes the prior art element should not be considered an equivalent to the specific structure, material or acts disclosed in the specification. Such reasons may include, but are not limited to:

(A) Teachings in the specification that particular prior art is not equivalent;

(B) Teachings in the prior art reference itself that may tend to show nonequivalence; or

(C) 37 CFR 1.132 affidavit evidence of facts tending to show nonequivalence.

For these reasons, the rejections based on Watanable, Matama, and Bradley have been maintained.

24. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to KEVIN M. NGUYEN whose telephone number is 571-272-7697. The examiner can normally be reached on MON-THU from 9:00-6:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, a supervisor RICHARD A. HJERPE can be reached on 571-272-7691. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8000.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the Patent Application Information Retrieval system, see http://portal.uspto.gov/external/portal/pair. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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December 6, 2006

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